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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,761	01/31/2000	Hyeon Jun Kim	P-082	3903

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EXAMINER
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SHERALI, ISHRAT I

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 07/30/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/494,761

Applicant(s)

KIM ET AL.

Examiner

Sherali Ishrat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 29 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8 and 12-27 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **Restriction**

1. Based on the amendment and the arguments restriction requirement (paper # 8) is withdrawn.

## **Response to Amendment/Arguments**

2. This action is response to amendment/arguments received on 4/29/03. All the changes claims have been entered. Claims 1-4 have been canceled and new claims 14-27 have been added.

Applicant's arguments are fully considered however they moot because of new grounds of rejection, which was necessitated by an amendment.

## **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 5-8 and 12-27, are rejected under 35 USC § 102 (b) as being anticipated by Vellaikal (Joint spatial – spectral Indexing for image retrieval, IEEE 0-7803-3258-X)

Regarding claim 5, Vellaikal discloses determining color similarity between a reference image and target image (See Vellaikal, paragraph 2, page 868, first column,

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lines 10-14, Vellaikal, shows determining similarity of two images Q, and T with respect to region  $r_i$  and Vellaikal shows in paragraph 2, page 868, first column, lines 14- 15 regions are represented with color such as gray and black i.e. Vellaikal is determining color similarity between a reference image [Q] and target image [T] );

each of which is represented by hierarchical grid levels (See Vellaikal, in figure 1 (a) and paragraph 2, page 867, second-column, lines 9-12 regions of image are split into hierarchical grid levels using quad tree and examiner notes that for comparing two images such as Q and T with respect to sub region level each image has to be split similarly in hierarchical grid levels).

searching images based on a content-based query by a user (See Vellaikal, paragraph 2, page 867, second-column, lines 1-5, Vellaikal shows image retrieval using sub region [spatially localized feature] of the image by processing query i.e. Vellaikal shows searching images [image retrieval] based on a content-based query by a user [query based on spatially localized feature]).

Regarding claim 6, Vellaikal discloses matching cells in the grid level of the reference image with cells in the grid levels of the target image (See Valliakal , paragraph 2, page 868, first column, lines 10-14, Vellaikal, shows determine similarity of two images Q, and T with respect to region  $r_i$  i.e. similarity with respect to region  $r_i$  of two images is matching cells in the grid level).

Regarding claim 7, Vellaikal discloses matching the grid levels of the reference image with respective one of the grid levels of the target image and cross-matching grid levels of the reference image with grid levels of the target image (See Valliakal , paragraph 2, page 868, first column, lines 10-14, Vellaikal, shows determine similarity

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of two images Q, and T with respect to region  $r_i$  i.e. similarity with respect to region  $r_i$  of two images is matching matching the grid levels of the reference image with respective one of the grid levels of the target image and cross-matching grid levels of the reference image with grid levels of the target image).

Regarding claim 8, Vellaikal discloses matching region representative color values between the grid level of the reference and target image (See Vellaikal, paragraph 2, page 868, first column, lines 14- 15 regions are represented with color such as gray and black and Vellaikal is determining similarity of two image with respect to region  $r_i$  as shown by Vellaikal in paragraph 2, page 868, first column, lines 10-14, i.e. Vellaikal discloses matching region representative color values between the grid level of the reference and target images [Q and T]).

Regarding claim 12, Vellaikal discloses searching a same position and different position between same levels in the case search is performed by matching a color region (See Vellaikal, paragraph 2, page 868, first column, lines 14- 15 regions are represented with color such as gray and black and Vellaikal is determining similarity of two image with respect to region  $r_i$  as shown by Vellaikal in paragraph 2, page 868, first column, lines 10-14, and Vellaikal in paragraph 2, page 867, second column, lines 1-15 shows images are split into hierarchical levels and images are search/retrieve using queries to match/search given sub regions in the database for retrieval/search to match sub regions Vellaikal has to search a same position and different position between same levels to determine the best match).

Regarding claim 13, Vellaikal searching at same position of different levels and at a different position (See Vellaikal, paragraph 2, page 868, first column, lines 14- 15

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regions are represented with color such as gray and black and Vellaikal is determining similarity of two image with respect to region  $r_i$  as shown by Vellaikal in paragraph 2, page 868, first column, lines 10-14, and Vellaikal in paragraph 2, page 867, second column, lines 1-15 shows images are split into hierarchical levels and images are seach/retrieve using queries to match/search given sub regions in the database for retrieval/search to match sub regions Vellaikal has to search different levels and at a different position to determine the best match).

Regarding claim 14, Vellaikal discloses a first grid (See Vellaikal, in figure 1a shows level 1 which is first grid and paragraph 2, page 867, second-column, 10-12, Vellaikal shows hierarchical spatial structuring by quad tree based splitting level0, level 1 and level 2);

a second grid (See Vellaikal, in figure 1a shows level 2 which is second grid and paragraph 2, page 867, second-column, 10-12, Vellaikal shows hierarchical spatial structuring by quad tree based splitting level 0, level 1 and level 2);

the first and the second grid expresses a feature of an image at different resolution (See Vellaikal, figure 1 (a), paragraph 2, page 867, second-column , lines16-18, Vellaikal shows level 0, level 1 and level 2 shows image features at different resolutions i.e. the first and the second grid expresses a feature of an image at different resolution).

Regarding claim 15, Vellaikal discloses a first grid includes first number of cells and second grid includes second number of cells (See Vellaikal, figure 1 a, Vellaikal shows level 1 [first grid] includes four cells and level 2 [second grid] includes sixteen cells).

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Regarding claim 16, Vellaikal discloses second number of cells is greater than first number of cells (See Vellaikal that level 2 [second grid] includes sixteen cells which is greater than four cell in level 1 [first grid]).

Regarding claim 17, Vellaikal discloses first and second grid are hierarchically related (See Vellaikal, figure 1a and paragraph 2, lines 10-12 shows level 1 [first grid] and level 2 [second grid] are related hierarchically).

Regarding claim 18, Vellaikal discloses second grid includes plurality of cell each group representing feature of image at different areas with a respective one cells in the first grid (See Vellaikal, figure 1a, second paragraph, page 867, second-column, lines 10-15, Vellaikal shows hierarchical spatial procedure involving quad tree based image splitting, array is equally subdivided into four quadrant i.e. Vellaikal shows in figure 1 a second grid [level 2] includes plurality of cell each group representing feature of image at different areas with a respective one cells in the first grid [level 1]).

Regarding claim 19, Vellaikal discloses feature is a spatial color feature (See Vellaikal in figure 1 b and paragraph 2, page 868, first column, lines 14-16, shows feature is spatial color feature).

Regarding claim 20, Vellaikal discloses each of the cell in the first grid is assigned a first and second value for representing the spatial color feature of image (See Vellaikal shows in paragraph, 3, page 868, second-column, lines 20-28, for each node [cell in the grid] DCT coefficients are obtained and DC coefficient is calculated which represent average color at given node i.e. first value is color and second is average of the color).

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Regarding claim 21, Vellaikal discloses first value is representative color and the second value is reliability score(See Vellaikal shows in paragraph, 3, page 868, second-column, lines 20-28, for each node [cell in the grid] DCT coefficients are obtained and DC coefficient is calculated which represent average color at given node i.e. first value is color and second value is average of the color which is the reliability of color).

Regarding claim 22, Vellaikal discloses each cell in the second grid is assigned multiple values for representing the spatial color feature (See Vellaikal shows in paragraph, 3, page 868, second-column, lines 20-28, for each node [cell in the grid] DCT coefficients are obtained and DC coefficient is calculated which represent average color at given node [cell] first value is color and second value is average of the color i.e. each cell in the second grid/first grid is assigned multiple values for representing the spatial color feature

Regarding claim 23, Vellaikal discloses number of cells in the first grid and second grid are proportional to the size of image (See Vellaikal , paragraph 2, page 867, second-column, lines 15-17, figure 1 a, first and second grids [level 1 and level 2] level 2 shows image features in higher resolution than level 1 i.e. number of cell is proportional to the size [resolution] of the image).

Regarding claim 24, Vellaikal discloses image has square shape and is uniformly divided into the cells of the grid (See 1a and b shows image has square shape and is uniformly divided into the cells of the grid).

Regarding claim 25, Vellaikal discloses image has non square shape (See Vellaikal, figure 1b, [middle of the figure] image has none square shape), and



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first side of the image is divided uniformly and second side of the image is divided based on a dividing unit of first side (See Vellaikal shows in figure 1 a level 1 first side is divided into two cells and similarly other side is divided into o two cells i.e. four equal cells), division forming the cells in the first grid (See Vellaikal figure 1 a division of four equal cells is level 1[first grid]).

Regarding claim 26, Vellaikal each of the cell in first grid has first size and second grid has second size (See Vellaikal in figure 1 a shows level 1 cells size is bigger than the size of cells level 2).

Regarding claim 27, Vellaikal discloses multilevel image data structure which is expressed based on an image grid having at least two different hierarchical levels (Vellaikal, figure 1a, paragraph 2, page 867, second –column, lines 10-18, Vellaikal shows splitting of image in hierarchical spatial structure which image at different spatial resolution i.e. Vellaikal shows multilevel [multiresolution] image data structure which is expressed based on an image grid having at least two different hierarchical [levels 1 and level 2]).

### **Allowable Subject Matter**

4. Claims 9-11 are objected as dependent on rejected base claim if rewritten in independent form including limitations of base and any intervening claims.

### **Conclusion**

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### **Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherali Ishrat whose telephone number is 703-308-9589. The examiner can normally be reached on 8:00 AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone numbers for the organization where this application or proceeding is assigned are 703-892-9314 for regular communications and 703-892-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-4750.

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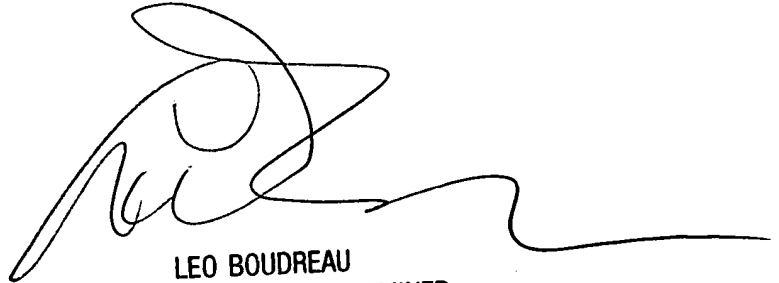


Ishrat Sherali

Patent Examiner

Group Art Unit 2621

July 28, 2003



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